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A beginning epidemic of the southern pine beetle in the Big Thicket of east Texas has been brought under control. Occasional spot infestations continue to appear but are being quickly mopped up by cutting and spraying crews. In central Alabama scattered small attacks currently exist but the situation is much improved over previous years at this season. The southern pine beetle is relatively scarce in southwest Mississippi, and no infestations are known elsewhere in the Mid-south.

The black turpentine beetle remains a serious and perplexing problem in many cutting areas. Ips bark beetles are gradually increasing but at a normal rate for the time of year; comparatively high concentrations of scattered infested trees and spot attacks occur locally in areas of below-normal rainfall and in the vicinity of lightning strikes.

SOUTHERN PINE BEETLE

Texas

Early in the summer a southern pine beetle outbreak rapidly developed in the Big Thicket of southeast Texas, in the same general area as the 1950-51 epidemic. The outbreak was confined to a triangular area of approximately 65,000 acres from west of Kountze to Sour Lake and Saratoga in Hardin County. It included several large industrial ownerships and numerous small holdings.

Since May, the Texas Forest Service and industrial foresters have made bi-weekly operational flights over the outbreak area and ad-

jacent timberland. Active spot infestations, which numbered over 60 at one time, involved as many as 250 trees in a group. Ground inspections showed that these "hot spots" were increasing rapidly and presented a definite threat to adjacent stands.

The Texas Forest Service assumed leadership in the overall control program, and cutting and spraying crews were organized and trained as quickly as possible. Spot infestations were located from the air and crews felled and treated beetle trees with benzene hexachloride in fuel oil. Controls were very effective. By early August, aerial observers were unable to find fresh attacks. In mid-August, however, two small groups of dying pines attacked by the southern pine beetle were located in northeast Liberty County south of the outbreak area. Operational flights and ground checking will continue until fall hardwood coloration makes it impossible to distinguish red-topped pines.

Recent aerial pest detection surveys made by Southern Forest Experiment Station entomologists over other forested areas of east Texas found no further indication of the southern pine beetle.

Alabama

In August 1957, an aerial survey over 9-1/2 million acres in Alabama disclosed an alarming increase of the southern pine beetle on private lands in the east-central portion near Lake Martin. An area of approximately 300,000 acres contained an estimated 250 groups of recently killed and dying pines. Timber owners were informed of the danger and some took steps to control the beetles. Last May, a similar survey revealed a two-thirds reduction in groups of red-topped pines.

An aerial detection survey was again made over beetle hazard areas in August 1958. Groups of dead pines were scarce in the Lake Martin area; only seven small spots were observed. In and near the Talladega District of the Talladega National Forest, however, 22 small groups and high concentrations of scattered dying pines were found, mostly in an area of 8,000 acres. Ground checking has shown that a good deal of the mortality was caused by *Ips* beetles associated with drought and summer cutting. It is possible that these conditions may lead to more serious trouble from the southern pine beetle.

Elsewhere in the State, populations of southern pine beetles are considered to be comparatively low.

Mississippi

Last year a definite flare-up of the southern pine beetle occurred on the southern portion of the Homochitto National Forest and adjoining private lands. The outbreak was brought under control quickly. Monthly operational flights by Ranger District personnel and State and industrial foresters have found little beetle activity since.

In July 1958, an aerial pest detection survey was made by the Southern Forest Experiment Station over southern Mississippi. Only five

spots suspected of harboring the southern pine beetle were found, and they were small and apparently inactive.

Louisiana

In March 1957, a beginning outbreak of the southern pine beetle was discovered north of Baton Rouge, near Pride. A State-wide aerial survey showed that most of the trouble was confined to two parishes close to the Mississippi line. Prompt action was taken by the Louisiana Forestry Commission and private owners to control the insect. The area was reflowed in June and September 1957 and again in July 1958, but no infestations were found.

BLACK TURPENTINE BEETLE

The black turpentine beetle is undoubtedly the most troublesome forest insect in the Midsouth today. It causes substantial losses in valuable stands, and large sums are being spent by industry and the national forests to prevent further destruction.

On the Kisatchie National Forest, Louisiana, for example, over \$50,000 was spent in the past year for treating stumps and infested trees in cutting and floodwater areas. The controls were necessary, and the values at stake far outweighed the sums expended. Yet the problem is still there and will probably continue as cutting progresses into new areas.

On the Homochitto and DeSoto National Forests in Mississippi, as well as on the Kisatchie, turpentine beetles have displayed an increasing tendency to attack standing trees rather than freshly cut stumps. On parts of the Homochitto and on several industrial lands, the beetles are infesting trees in areas where cutting has not been done in recent years.

During training sessions throughout the South more interest has been shown in the turpentine beetle and more questions asked about its control than for any other forest pest. Unfortunately the answers to many of these questions are not known. There is need for much more basic research on this species.

IPS BARK BEETLES

Ips beetle populations have gradually increased with an accumulation of lightning-struck trees in most areas and a rainfall deficiency in others that were missed by summer storms. Some group killing of pines has occurred around lightning strikes, and relatively high concentrations of single infested trees have developed in weakened stands. Generally, however, infested trees are widely scattered.

If the late summer is hot and dry, Ips populations may be expected to increase. Stands that are over-dense or weakened by wildfire will be most susceptible. Prompt removal of pulpwood bolts from tops of trees cut in sawtimber logging will retard Ips development during dry periods.

MISCELLANEOUS PINE INSECTS

The Nantucket pine tip moth is present in young loblolly and short-leaf pine plantations generally. The degree of infestation varies greatly, and in some areas the damaged foliage has attracted considerable attention. In Arkansas, Louisiana, and northern Mississippi, infestations have been reported on trees of all sizes. Tip-moth larvae slow down the growth of young trees, but their ultimate effect on the overall growth of the tree to maturity is not known.

Larvae of a moth, Dioryctria, have conspicuously injured twigs of longleaf pines of all sizes in parts of Texas, Louisiana, and Mississippi. The larvae, although much larger than tip-moth larvae, also hollow out twigs and cause noticeable "flagging" of the foliage.

The red-headed pine sawfly has been a common defoliator in young plantations from Texas to Florida. Most attacks are on loblolly and slash pines, but in August many trees in several hundred acres of longleaf pine were defoliated near Alexandria, Louisiana. Severe and repeated defoliation has killed trees in some plantations.

FOREST DISEASES

Oak wilt. --Aerial and roadside surveys of oak-wilt incidence were made in northwest Arkansas and in the bluff hardwood type on the east bank of the Mississippi River in Mississippi and Tennessee. Wilting trees were found only in Arkansas: 1 center in Baxter County, 2 centers in Boone County, 1 center in Carroll County, 3 centers in Newton County, 2 centers in Madison County, and 5 centers in Washington County. Only one wilted tree was found at most centers; a few had two. The survey did not include Sharp and Independence Counties and adjacent territory where the wilt has been prevalent for several years and where a control program is in progress. Except for that area, oak wilt appears to occur only in scattered spots in northwest Arkansas. This suggests that a vigorous control program probably would keep the disease in check in most of Arkansas.

In Tennessee oak wilt has been well entrenched for several years in the area east of the Tennessee River. Only a few infection centers have been found on the Cumberland Plateau, and none in western Tennessee.

Oak wilt has not been found in any of the other States in the Southern Forest Experiment Station's territory, but some of the wilted trees found in Arkansas in 1958 were near the Oklahoma border. It thus seems likely that the disease is present or will be present soon in that State.

Leaf blotch of oak. --Considerable leaf bronzing, followed by premature leaf fall, occurred this summer on southern red oak in the Memphis area. The cause was not the oak wilt disease but a leaf fungus tentatively identified as Cladosporium. It is believed that the unusually damp weather during the spring and summer of 1958 favored the development of the fungus.

Severe outbreaks of leaf diseases can occur with only a few wet weeks in the spring, when new leaves are expanding. Several fungi have spotted hardwood leaves over wide areas in the South during the past few years. Usually damage is restricted to the current crop of leaves and thus only temporarily disfigures trees. Some loss in growth may also occur. Fungicidal sprays will control leaf-spotting fungi, but cost so much that they are generally used only on the most prized ornamental trees.

Cone rust. --Rust again was prevalent this spring on slash pine along the Gulf Coast. In some areas 50 percent or more of the cone crop was lost. Fortunately, severe damage was restricted to a strip a few miles wide, except in Georgia and Florida. Preliminary tests indicated that a single spray with ferbam applied about the time of pollination will control cone rust. Further tests, however, are needed before definite recommendations can be made.

Nursery diseases. --It is still too early to evaluate the importance of many pine tree nursery diseases this season. This is especially true of fusiform rust and some of the root rots. However, one disease, i.e., damping-off, was more prevalent than usual in several southern nurseries. Most was typical post-emergence damping-off, which attacks while stems are still succulent, but severe losses from top-damping were sustained among experimental seedlings at Gulfport, Mississippi. Fusarium was the most common damping-off fungus encountered.

NEW PUBLICATIONS

The following publications on forest diseases and insects in the South have been prepared by the U. S. Department of Agriculture, Forest Service. Copies are available through the Southern Forest Experiment Station.

Diseases

- Boyce, J. S. Needle Cast of Southern Pines. Forest Pest Leaflet 28. 1958.
Fowler, M. E. Oak Wilt. Forest Pest Leaflet 29. 1958.
Hepting, G. H. Southern Cone Rust. Forest Pest Leaflet 27. 1958.
Verrall, A. F. Fusiform Rust of Southern Pines. Forest Pest Leaflet 26. 1958.
Zak, B. Littleleaf of Pine. Forest Pest Leaflet 20. 1957.

Insects

- Bennett, Wm. H. The Texas Leaf-Cutting Ant. Forest Pest Leaflet 23. 1958.
Bennett, Wm. H. This is Alice Frontalis. [Cartoon booklet on control of southern pine beetle.] 1958.
Kowal, R. J., and Rossoll, Harry. Beetles in Your Pines? How Good Cutting Practices and Management Stop Beetles from Killing Your Timber. Southeastern Forest Experiment Station, Asheville, N. C. 1958.

